

PATENT COOPERATION TREATY

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(PCT Rule 71.1)

Date of mailing (day/month/year)	28-04-2004
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Applicant's or agent's file reference 209533/DJW/DG	IMPORTANT NOTIFICATION
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International application No. PCT/IB2003/001280	International filing date (day/month/year) 07-03-2003	Priority date (day/month/year) 07-03-2002
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Applicant
Nokia Corporation
et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/ Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Telex 17978 PATOREG-S	Authorized officer Christina Wall
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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 209533/DJW/JL	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB 2003/001280	International filing date (day/month/year) 07.03.2003	Priority date (day/month/year) 07.03.2002
International Patent Classification (IPC) or national classification and IPC H04Q 7/38		
Applicant Nokia Corporation et al		
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>6</u> sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).		
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application		
Date of submission of the demand 03.10.2003	Date of completion of this report 26.04.2004	
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Stefan Hansson /OGU Telephone No. +46 8 782 25 00	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/001280

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 17 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 18 - 23 _____ received by this Authority on 19.03.2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1 - 3 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/001280

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-31</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-31</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-31</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention

The claimed invention relates to allocation of an S-CSTF to a subscriber.

The following documents were cited in the International Search Report:

D1: WO 0186968 A1
D2: WO 0209365 A1
D3: WO 0131963 A1
D4: WO 0120846 A2

D1 relates to a method, a telecommunication system and a service control point for considering the load situation of the service control point during the initiation of a service logic. D1 describes on page 10 line 35 - page 11 line 9 that the loading situation of the capacity allocated to the control function is monitored.

However, the claimed invention differs from D1 in the following respect. According to the claimed invention, load information from a plurality of S-CSCFs is received and, based on all this information, one of the plurality of S-CSCFs is allocated based on an algorithm to spread the load between S-CSCFs whereas D1 takes only each control point in turn, initiating the service logic in the first non-overloaded one found, without looking at the plurality.

D2-D4 are considered to merely disclose the state of the art and are not commented on further.

Consequently, the claimed invention as in claims 1-31 is novel, considered to involve an inventive step and has industrial applicability.

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CLAIMS

1. A method of allocating one of a plurality of serving
call state control functions to a subscriber, the method
5 including:

receiving load information from a plurality of serving
call state control functions in a signalling message; and

determining a serving call state control function for
the subscriber in dependence on the received load
10 information, wherein the step of determining a serving call
state control function is carried out by a network resource.

2. The method of claim 1 wherein the network resource is
the interrogating call state control function.

3. The method of claim 2 wherein the network resource is a
home subscriber server.

4. The method of any one of claims 1 to 3 wherein the
20 subscriber is either located in a visited network or a home
network and is registered in a home network.

5. The method of any one of claims 1 to 4 wherein the load
information indicates the actual current load of the serving
25 call state control function.

6. The method of any one of claims 1 to 4 wherein the load
information indicates the availability of the call state
control function.

7. The method of any one of claims 1 to 4 wherein the load
information indicates a time period in which the serving

call state control function cannot receive further subscriber registrations.

8. The method of claim 1 further including a session
5 between a serving call state control function and
interrogating call state control function for transmitting
the availability information.

9. The method of claim 8 further including sessions
10 between interrogating call state control function and a
plurality of serving call state control functions.

10. The method of claim 8 further including transmitting an
unavailability signal within the session from the serving
15 call state control function to interrogating call state
control function to indicate unavailability of the serving
call state control to receive subscriber registrations.

11. The method of claim 8 further including transmitting an
20 availability signal within the session from the serving call
state control function to the interrogating call state
control function to indicate availability of the serving
call state control function to receive subscriber
registrations.

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12. The method of claim 8 further including transmitting a
keep-alive signal within the session from the serving call
state control function to the interrogating call state
control function to indicate availability of the serving
30 call state control function to receive subscriber
registrations.

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13. The method according to claims 1 to 7 wherein the signalling message is related to subscriber registration.

5 14. The method according to claims 8 to 12 wherein the signalling message is related to a session between a serving call state control function and interrogating call state control function.

10 15. The method according to claims 13 and 14 wherein the signalling message is one of a 200 OK, INVITE, SUSPEND, or RESUME SIP Requests.

15 16. The method according to claim 13 wherein the signalling message is one of a Cx_Put, Cx_Put Resp, Cx_Pull, or a Cx_Pull Resp messages.

20 17. The method of any one of claims 1 to 16 in which the serving call state control function is selected on a session basis.

25 18. A method according to any preceding claim in which the subscriber is located in a home network or a visited network, and the serving call state control function is located in the home network.

30 19. A network element for allocating one of a plurality of serving call state control function means to a subscriber, the network including a home network comprising an interrogating call state control function means and a plurality of serving call state control function means; wherein the interrogating call state control function means receives load information from a plurality of the serving

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call state control function means in a signalling message;
and a broker associated with the network element determines
a serving call state control function means for the
subscriber in dependence on the received load information.

5

20. A network element according to claim 19, wherein the
network element is the interrogating call state control
function.

10 21. A network element according to claim 20, wherein the
network element is a home subscriber server.

22. A network element according to any one of claims 19 to
21, wherein the network further includes a visited network,
15 wherein the subscriber is connected in either the visited
network or the home network.

23. A network element according to any one of claims 19 to
22 wherein the interrogating call state control function
20 means receives load information from a plurality of serving
call state control functions.

24. A network element according to any one of claims 19 to
23 wherein the load information indicates the availability
25 of a call state control function.

25. A network element according to claims 19 to 24 wherein
the signalling message is related to subscriber
registration.

30

26. A network element according to any one of claims 19 to
25 further including a session between a serving call state

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control function for transmitting for transmitting the availability information.

27. A network element according to claim 26 wherein the
5 signalling message is related to a session between a serving call state control function and interrogating call state control function.

28. A network element according to claim 26 or 27 wherein
10 the signalling message is one of a 200 OK, INVITE, SUSPEND, or RESUME SIP Requests.

29. A network element according to claim 25 wherein the
15 signalling message is one of a Cx_Put, Cx_Put Resp, Cx_Pull, or a Cx_Pull Resp messages.

30. A mobile wireless communications system including a home network, wherein the home network includes a network element for allocating one of a plurality of serving call
20 state control function means provided in the home network to a subscriber, the home network further comprising an interrogating call state control function means; wherein the interrogating call state control function means receives load information from a plurality of the serving call state
25 control function means; and a broker associated with the network element determines a serving call state control function means for the subscriber in dependence on the received load information.

30 31. A mobile wireless communication system according to claim 30 further including a visited network, wherein the

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subscriber is connected in either the visited network or the
home network.

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AMENDED SHEET

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